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|-------------------------|-------------|----------------------|------------------------------|------------------|
| APPLICATION NO.         | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.          | CONFIRMATION NO. |
| 10/565,894              | 07/24/2006  | Alison M. Jones      | 18780-008US1<br>CGL03/0260WO | 7347             |
| 38550                   | 7590        | 02/06/2008           | EXAMINER                     |                  |
| CARGILL, INCORPORATED   |             |                      | MACAULEY, SHERIDAN R         |                  |
| LAW/24                  |             |                      | ART UNIT                     | PAPER NUMBER     |
| 15407 MCGINTY ROAD WEST |             |                      | 1651                         |                  |
| WAYZATA, MN 55391       |             |                      | MAIL DATE                    | DELIVERY MODE    |
|                         |             |                      | 02/06/2008                   | PAPER            |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                                  |                  |
|------------------------------|----------------------------------|------------------|
| <b>Office Action Summary</b> | Application No.                  | Applicant(s)     |
|                              | 10/565,894                       | JONES ET AL.     |
|                              | Examiner<br>Sheridan R. MacAuley | Art Unit<br>1651 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 November 2007.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 27-31,46-54,68-73 and 76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 27-31,46-54,68-73 and 76 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/24/2006</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

A response and amendment were received on November 20, 2007. Claims 32-45, 55-67, 74 and 75 have been cancelled. New claim 76 has been added. Claims 27-31, 46-54, 68-73 and 76 are pending.

### ***Election/Restrictions***

1. Applicant's election without traverse of Group IV, as set forth in the restriction requirement mailed on June 7, 2007; in the reply filed on November 20, 2007 is acknowledged.
2. Due to applicant's amendment, no claims are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.
3. Claims 27-31, 45-54, 68-73 and 76 are examined on the merits in this office action.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 27-31, 46-50, 68-73 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto (US Pat. 3,655,396) in view of Caransa et al. (US 4,914,029). Claim 27 recites a method of making a feed additive or a feedstock comprising: providing corn steep-water having a solids content of from about 8% to about 50% on a dry weight basis; fermenting the steep-water in the presence of at least one microbe to generate fermented steep-water, wherein said microbe is yeast, wherin said fermenting is under conditions that generate a enhanced steep-water having at least about 70% yeast on a microbial dry weight basis; and drying the fermented steep-water to generate

an enhanced steep-water having a solids content of from about 30% to about 90% on a dry weight basis, thereby making said feed additive or said feedstock. Claims 28-31 recite the method of claim 27 wherein the corn steep-water is a low phosphorous steep-water, specifically a low phytate steep-water and wherein the at least one microbe is endogenous or exogenous to the steep-water. Claim 46 recites the method of claim 27 wherein said yeast is selected from the group consisting of *Saccharomyces cerevisiae*, *Candida utilis*, *Kluyveromyces marxianus*, and *Torulaspora delbrueckii*. Claim 47 and 48 recite the method of claim 27 wherein the fermenting is performed at a temperature of from about 25 degrees C to about 45 degrees C under aerobic conditions, specifically at a temperature of at least about 28 degrees C for at least about 24 hours. Claims 49 and 50 recite the method of claim 27 wherein the fermented steep-water comprises at least 7 g acetate per L of fermented steep-water or at least about 1 microgram of biotin per g of steep-water solids. Claims 68-70 recite the method of claim 27 wherein the enhanced steep-water has a solids content of from about 40% to about 80%, specifically from about 50% to about 70% or from about 60% to about 75%, on a dry weight basis. Claims 70 and 71 recite the method of claim 27 further comprising removing, at least partially, the at least one microbe from the fermented or enhanced steep-water, and further comprising mixing the removed at least one microbe with the feed additive or feedstock. Claim 73 recites the method of claim 27 further comprising mixing the feed additive or feedstock with a feedstuff to generate an animal feed having a moisture content of at least about 12% by weight. Claim 76 recites the method of

claim 27 wherein the corn steep has a solids content of from about 8% to about 12% on a dry weight basis.

8. Goto teaches a method of making a feed additive comprising fermenting corn steep-water having a solids content of 8% in the presence of a microbe, such as one of the claimed yeasts, and drying the fermented steep-water to generate a steep-water having a solids content of 30-60 percent (i.e. the product prior to the addition of the removed microorganisms; abstract, col. 3, lines 16-25, col. 4, lines 33-42, col. 6, lines 55-69). Goto teaches that steep-water may be used in the fermentation without being sterilized; thus, the steep-water would inherently contain an endogenous microbe as well as the exogenous microbes that are used in the process. Goto teaches that at the fermentation may be conducted at, for example 30 degrees C for 20 hours, thus meeting the claim limitations (col. 4, lines 18-19). Goto teaches removing the microbe from the fermentate and then mixing it with the feed additive or feedstock (col. 3, lines 16-29). Goto teaches that the final animal feed has a moisture content of up to about 15% (col. 6, lines 45-52).

9. Goto does not teach the use of low phosphorous or low phytate steep-water. Goto does not teach that the enhanced steep-water has at least about 70% yeast on a microbial dry weight basis. Goto does not teach that the fermented steep-water contains at least 7 g acetate per L of fermented steep-water or that the fermented or enhanced steep-water comprises at least about 1 microgram biotin per g of steep-water solids.

10. Caransa teaches the preparation of a corn steep liquor (i.e. corn steep-water) wherein the concentration of phytate is reduced (abstract). Caransa also teaches methods for the physical removal of phosphorous as phytic acid from corn steep-water (col. 1, line 64-col. 2, line 8).

11. At the time of the invention, a method for making a feed additive comprising corn steep-water comprising nearly all of the claimed elements was known, as taught by Goto. It was further known in the art that the phytate or phosphorous content could be removed from corn steep-water. One of ordinary skill would have been motivated to reduce the concentration of phytate or remove phytate from corn steep-water because Caransa teaches that phytate is known to be an undesirable component in the steep-water, for example because it inhibits the activity of various enzymes in the body when used as a feed (col. 1, lines 31-63). One of ordinary skill in the art would have had a reasonable expectation of success in using corn steep-water which was low in phytate in the method of Goto because Caransa teaches that the methods are useful as a nutrient in microbial fermentation and as animal feed (col. 1, lines 26-30). Further, although Goto does not specify how much yeast is contained within the steep-water, it is clear that the fermentate could have contained a significant portion of yeast because the reference discusses that the microbial cells may be removed by filtration, thus concentrating the cells, and then added again to the concentrated, fermented steep-water; one of ordinary skill in the art would thus have been able to choose the proportion of yeast to add to the fermented steep-water and could have arrived at the claimed concentration in the course of routine experimentation. Although neither

reference specifies the amounts of acetate and biotin in the steep-water solids, the combined references teach all elements of the claimed process. Therefore, one of ordinary skill in the art would conclude that the claimed characteristics must be inherent to the composition taught by the references, or that there is no unobvious difference between the claimed process and that taught by the combined references, especially in the absence of evidence to the contrary. It would therefore have been obvious to one of ordinary skill in the art to combine the teachings discussed above to arrive at the claimed invention.

12. Claims 27, 30, 31, 46-54, 68-73 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto (US Pat. 3,655,396) in view of Robbins et al. (US 4,122,196). Claim 27 recites a method of making a feed additive or a feedstock comprising: providing corn steep-water having a solids content of from about 8% to about 50% on a dry weight basis; fermenting the steep-water in the presence of at least one microbe to generate fermented steep-water, wherein said microbe is yeast, wherein said fermenting is under conditions that generate an enhanced steep-water having at least about 70% yeast on a microbial dry weight basis; and drying the fermented steep-water to generate an enhanced steep-water having a solids content of from about 30% to about 90% on a dry weight basis, thereby making said feed additive or said feedstock. Claims 30 and 31 recite the method of claim 27 wherein the at least one microbe is endogenous or exogenous to the steep-water. Claim 46 recites the method of claim 27 wherein said yeast is selected from the group consisting of *Saccharomyces*

*cerevisiae*, *Candida utilis*, *Kluyveromyces marxianus*, and *Torulaspora delbrueckii*.

Claim 47 and 48 recite the method of claim 27 wherein the fermenting is performed at a temperature of from about 25 degrees C to about 45 degrees C under aerobic conditions, specifically at a temperature of at least about 28 degrees C for at least about 24 hours. Claims 49 and 50 recite the method of claim 27 wherein the fermented steep-water comprises at least 7 g acetate per L of fermented steep-water or at least about 1 microgram of biotin per g of steep-water solids. Claims 50-54 recite the method of claim 27 further comprising lysing, at least partially, said at least one yeast in the fermented or enhanced steep-water to generate a yeast extract, specifically wherein said lysing comprises incubating the fermented or enhanced steep-water at a pH of from about 4.7 to about 5.2 and a temperature of from about 42 degrees C to about 48 degrees C, specifically wherein at least some of said lysing is autolysing by said at least one yeast and wherein the autolysing is performed under aerobic conditions at a pH of about 5.0 and a temperature of about 45 degrees C. Claims 68-70 recite the method of claim 27 wherein the enhanced steep-water has a solids content of from about 40% to about 80%, specifically from about 50% to about 70% or from about 60% to about 75%, on a dry weight basis. Claims 70 and 71 recite the method of claim 27 further comprising removing, at least partially, the at least one microbe from the fermented or enhanced steep-water, and further comprising mixing the removed at least one microbe with the feed additive or feedstock. Claim 73 recites the method of claim 27 further comprising mixing the feed additive or feedstock with a feedstuff to generate an animal feed having a moisture content of at least about 12% by weight. Claim 76 recites the method of

claim 27 wherein the corn steep has a solids content of from about 8% to about 12% on a dry weight basis.

13. Goto teaches a method of making a feed additive comprising fermenting corn steep-water having a solids content of 8% in the presence of a microbe, such as one of the claimed yeasts, and drying the fermented steep-water to generate a steep-water having a solids content of 30-60 percent (i.e. the product prior to the addition of the removed microorganisms; abstract, col. 3, lines 16-25, col. 4, lines 33-42, col. 6, lines 55-69). Goto teaches that steep-water may be used in the fermentation without being sterilized; thus, the steep-water would inherently contain an endogenous microbe as well as the exogenous microbes that are used in the process. Goto teaches that at the fermentation may be conducted at, for example 30 degrees C for 20 hours, thus meeting the claim limitations (col. 4, lines 18-19). Goto teaches removing the microbe from the fermentate and then mixing it with the feed additive or feedstock (col. 3, lines 16-29). Goto teaches that the final animal feed has a moisture content of up to about 15% (col. 6, lines 45-52).

14. Goto does not teach lysing the yeast in the fermentate to generate a yeast extract, such as by the claimed methods. Goto does not teach that the enhanced steep-water has at least about 70% yeast on a microbial dry weight basis. Goto does not teach that the fermented steep-water contains at least 7 g acetate per L of fermented steep-water or that the fermented or enhanced steep-water comprises at least about 1 microgram biotin per g of steep-water solids.

15. Robbins teaches a method for the manufacture of autolyzed yeast extract wherein the yeast is lysed or autolyzed by at a pH of 5 or higher at a temperature of 40 degrees C or higher (col. 2, lines 19-35).

16. At the time of the invention, a method for making a feed additive comprising corn steep-water comprising nearly all of the claimed elements was known, as taught by Goto. It was further known in the art that autolyzed yeast could be manufactured by treating the yeast using the claimed conditions. One of ordinary skill in the art would have been motivated to use the autolysis conditions taught by Robbins in the method of Goto because Robbins discusses that the method makes use of residual yeast and yeast that has been made by any process which is known in the art and that the resulting yeast products may be of food grade (col. 1, lines 10-18, col. 2, lines 3-16). One of ordinary skill in the art would have had a reasonable expectation of success in combining these teachings because Robbins makes use of filtered yeast, which is produced in the method of Goto. Further, although Goto does not specify how much yeast is contained within the steep-water, it is clear that the fermentate could have contained a significant portion of yeast because the reference discusses that the microbial cells may be removed by filtration, thus concentrating the cells, and then added again to the concentrated, fermented steep-water; one of ordinary skill in the art would thus have been able to choose the proportion of yeast to add to the fermented steep-water and thus could have arrived at the claimed concentration in the course of routine experimentation. Although neither reference specifies the amounts of acetate and biotin in the steep-water solids, the combined references teach all elements of the

claimed process. Therefore, one of ordinary skill in the art would conclude that the claimed characteristics must be inherent to the composition taught by the references, or that there is no unobvious difference between the claimed process and that taught by the combined references, especially in the absence of evidence to the contrary. It would therefore have been obvious to one of ordinary skill in the art to combine the teachings discussed above to arrive at the claimed invention.

17. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

### ***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan R. MacAuley whose telephone number is (571) 270-3056. The examiner can normally be reached on Mon-Thurs, 7:30AM-5:00PM EST, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SRM  
/Ruth A Davis/  
Primary Examiner, AU 1651